MI FluFocus

Influenza Surveillance and Avian Influenza Update

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Bureau of Epidemiology
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New updates in this issue:

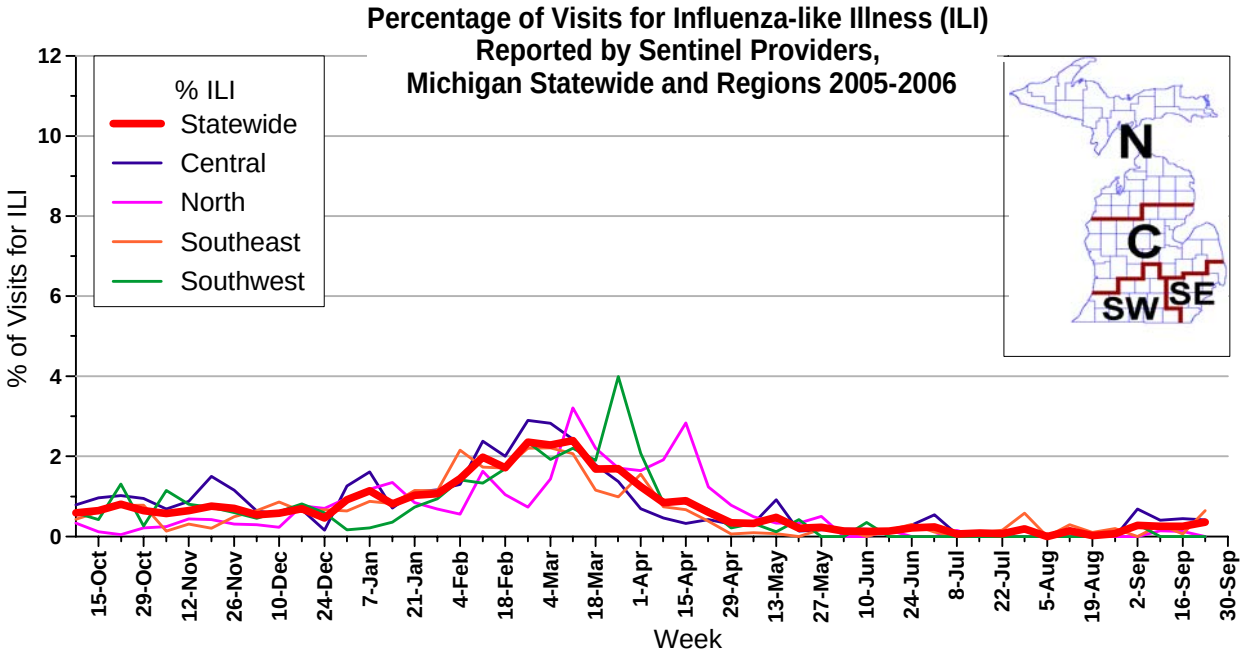
- **Syndromic Surveillance:** Respiratory alerts decrease but still comparable to last year's peak.
- **National Surveillance:** Outbreaks of influenza A (H1N1) and influenza B reported in Alabama.
- **Avian Influenza:** Human deaths in Indonesia and Thailand; Low pathogenicity H5 and N1 subtypes found in wild Northern pintails in Montana.

Michigan Disease Surveillance System: As expected, the first few weeks of the academic year have correlated with an increase in flu-like illness activity reported in MDSS. This trend is expected to continue as the respiratory illness season progresses. However, current flu-like illness activity is comparable to that seen from last year at this time.

Emergency Department Surveillance: Although the level of emergency department visits due to constitutional syndrome complaints is currently low and comparable to that seen last year at this time, the most recent information may indicate an increasing trend. This will need to be monitored over the next couple of weeks for verification. The level of emergency department visits due to respiratory syndrome, which has risen dramatically over the past weeks, may be showing signs of leveling off. However, it is still similar to near-peak activity seen in February of this year. Three constitutional alerts were generated in the past week, including statewide (1), Region 1 (1), and Region 2S (1). Alerts for respiratory syndrome were down substantially, with only one alert (Region 5) generated over the past week.

Over-the-Counter Product Surveillance: Over-the-counter influenza indicators support the conclusions drawn above. While sales of chest rubs have increased over the past week, sales of other respiratory medications/products, such as adult cold relief, cough/cold products, and nasal products have all peaked and are now decreasing. Antifever medication, pediatric cold relief, electrolyte, and thermometer sales continue to be either stable or decreasing.

Sentinel Surveillance (**as of September 28, 2006**): During the week ending September 23, 2006, the proportion of visits due to influenza-like-illness (ILI) increased slightly to 0.5% of all visits. Fourteen sentinels provided data for this report. Low levels of ILI activity were reported in all regions; the percentage of visits due to ILI increased slightly to 0.7% in the Southeast, decreased to 0.0% in the North and remained at 0.6%, Central region and 0.0%, Southwest.



As part of pandemic influenza preparedness, CDC and MDCH highly encourage and recommend year-round participation from all sentinel providers. New practices are encouraged to join influenza sentinel surveillance program today! Contact Rachel Potter at 517-335-9710 or potterr1@michigan.gov for more information.

Laboratory Surveillance (as of September 28): No reports were received for the past week. The MDCH laboratory has confirmed 138 influenza cases in Michigan over the 2005-2006 season, of which 132 were influenza A (H3N2) and 6 were influenza B.

***As a reminder, the positive predictive value of influenza rapid tests decreases during times of low influenza prevalence, such as the summer months. MDCH suggests that during periods of low influenza activity in your community, all positive rapid tests results be confirmed by sending in a specimen for viral culture; this can be arranged through your local health department.

Influenza-Associated Pediatric Mortality (as of September 28): There were no new reports this week. For the 2005-2006 influenza season, Michigan had one confirmed influenza-associated pediatric death from region 2S. During October 2, 2005 – May 20, 2006, CDC received reports of 35 influenza-associated pediatric deaths, 33 of which occurred during the current influenza season.

***Reminder: The CDC has asked all states to continue to collect information on any pediatric death associated with influenza infection. This includes not only any death in a child less than 18 years of age resulting from a clinically compatible illness confirmed to be influenza by an appropriate laboratory or rapid diagnostic test, but also unexplained death with evidence of an infectious process in a child. Refer to http://www.michigan.gov/documents/fluletter_107562_7.pdf for the complete protocol. It is important to immediately call or fax information to MDCH to ensure that appropriate clinical specimens can be obtained.

Congregate Settings Outbreaks (as of September 28): No reports were received during the past reporting week. A total of two congregate setting outbreaks have been reported to MDCH this past season; one in Southwest Michigan in late February and one in Southeast Michigan in late March. Both outbreaks were MDCH laboratory confirmed as due to influenza A (H3N2).

National (CDC, September 26): In southeast Alabama, 13 cultures from Dale County have tested positive for influenza A (H1N1) and three from Houston County have tested positive for influenza B Shanghai. Starting in late August, 2006, Dale County reported patients with classical influenza symptoms, starting first among middle school children but later spreading to other age groups. Over 30 influenza quick tests were positive. Eventually 13 cultures were positive for influenza type A (H1N1). Following publicity of the above outbreak, patients with influenza symptoms were reported from Houston County (in the southeastern

corner of Alabama). As of September 25, three patients have cultures positive for influenza type B Shanghai. At the same time as the first outbreak a culture from Mobile County (southwest Alabama) was positive for influenza type B Hong Kong. Culture isolates are being forwarded to CDC.

The CDC has released its recommendations for using antiviral agents for influenza for the 2006-07 influenza season. Four licensed influenza antiviral agents are available in the United States: amantadine, rimantadine, zanamivir, and oseltamivir. Influenza A virus resistance to amantadine and rimantadine can emerge rapidly during treatment. On the basis of antiviral testing results conducted at CDC and in Canada indicating high levels of resistance, CDC and ACIP recommend that neither amantadine nor rimantadine be used for the treatment or chemoprophylaxis of influenza A in the United States until susceptibility to these antiviral medications has been re-established among circulating influenza A viruses. Oseltamivir or zanamivir can be prescribed if antiviral treatment of influenza is indicated. Oseltamivir is approved for treatment of persons aged $\geq$1 year, and zanamivir is approved for treatment of persons aged $\geq$7 years. Oseltamivir and zanamivir can be used for chemoprophylaxis of influenza; oseltamivir is licensed for use in persons aged $\geq$1 year, and zanamivir is licensed for use in persons aged $\geq$5 years.

International (WHO, as of August 30): During weeks 31- 33, with the exception of New Zealand, where regional influenza A(H3N2) activity continued, overall influenza activity in both northern and southern hemispheres was low. In Australia, localized influenza activity continued to be reported during weeks 31–33. Influenza A and B viruses co-circulated. During weeks 31-33, influenza A activity in New Zealand remained similar to previous weeks and was reported as regional. Low influenza activity was reported in Argentina (H1, A and B), Hong Kong, Special Administrative Region of China (H1, H3 and B), Japan (H1), Madagascar, South Africa (H3 and B), and Uruguay (H1, A and B). Sweden reported an A(H3N2) case imported from China during week 33. Mexico, Portugal and Slovenia reported no influenza activity.

Weekly influenza activity reporting to the CDC has not started for the 2006-2007 influenza season.

End of Seasonal Report

Avian Influenza Activity

WHO Pandemic Phase: Phase 3 - Human infection(s) with a new subtype, but no human-to-human spread or rare instances of spread to a close contact.

International Update (WHO, September 25, 27 and 28): The Ministry of Health in Indonesia has confirmed three additional cases of human infection with the H5N1 avian influenza virus, all of which were fatal. The first case occurred in an 11-year-old boy from East Java Province. He developed symptoms of fever and cough on September 16th, was hospitalized on September 18th, and died the same day. Poultry in the child's household began dying in the month prior to symptom onset, and poultry deaths continued thereafter in his neighborhood.

The second case occurred in a 9-year-old boy from South Jakarta. He developed symptoms of fever and a runny nose on September 13th, was hospitalized on September 20th, and died on September 22nd. His history showed recent contact with sick chickens, which he kept as pets.

The third case, the country's 68th, is a 20-year-old male from Bandung, West Java. He developed symptoms of fever and cough on September 17th, was hospitalized on September 24th, and died on September 28th. The man's 23-year-old brother developed symptoms on September 16th. He died of respiratory disease on September 24th, two hours after admission to hospital. Infection with the H5N1 virus is suspected for the 23-year-old male, but cannot be confirmed as no samples were collected for testing. Both men had direct contact with dead chickens when feeding carcasses to their dogs. Local agricultural authorities also found evidence of H5 infection in household birds. A third sibling, a 15-year-old female, was hospitalized on September 25th after developing symptoms of fever and cough. Initial test results received on September 27th were negative for the H5 virus subtype and positive for the H1 subtype, indicating an infection with normal seasonal influenza. She remains hospitalized in a stable condition. Of the 68 cases confirmed to date in Indonesia, 52 have been fatal.

The Ministry of Public Health in Thailand has confirmed the country's 25th case of human infection with the H5N1 avian influenza virus. The case, which was fatal, was the third detected this year and the third fatality. The case occurred in a 59-year-old farmer from Nong Bua Lam Phu Province in the north-eastern part of the country. He developed fever on July 14th, was hospitalized on July 21st, and died on August 10th. Possible H5N1 infection was suspected when relatives reported the sudden death, in the days prior to symptom onset, of several fighting cocks raised by the farmer. Local veterinary authorities noted a number of poultry outbreaks in the area. Repeated tests on samples taken from his upper respiratory tract were negative by PCR for all influenza A viruses, including H5N1. He was treated with the antiviral drug Oseltamivir. Virus was eventually isolated from lung samples taken at autopsy. Of the 25 cases confirmed to date in Thailand, 17 have been fatal. Poultry outbreaks were confirmed in two provinces of Thailand in late July of this year following a lull in outbreaks dating back to 9 November 2005.

National Wild Bird Surveillance (USDA, September 21): The U.S. Departments of Agriculture and Interior today announced a detection of the H5 and N1 avian influenza subtypes in samples from wild Northern pintail ducks in Montana. Initial tests confirm that these samples do not contain the highly pathogenic H5N1 strain that has spread through birds in Asia, Europe and Africa. These samples were collected from apparently healthy ducks and initial test results indicate the presence of low pathogenic avian influenza (LPAI) virus, which poses no threat to human health. The duck samples were collected on Sept. 15 in Cascade County, Montana, by Montana Fish, Wildlife and Parks as part of a cooperative, expanded wild bird monitoring program. Sixty-six samples were collected directly from the birds using cloacal swabs. Samples were initially screened at the Colorado State University Veterinary Diagnostic Laboratory. Of the 66 samples tested at the CSU state lab, 16 samples were sent to USDA's National Veterinary Services Laboratory (NVSL) in Ames, Iowa for confirmatory testing. One of the 16 samples screened by NVSL tested positive for both H5 and N1. However, this does not mean these birds are infected with an H5N1 strain. It is possible that there could be two separate avian influenza viruses, one containing H5 and the other containing N1. Confirmatory testing underway at NVSL will clarify whether one or more strains of the virus are present, the specific subtype, as well as confirm the pathogenicity. These results are expected within two to three weeks and will be made public when completed.

USDA, September 23: The U.S. Departments of Agriculture and Interior today announced final test results, which confirm that low pathogenic H5N1 avian influenza virus was found in samples collected last month from wild mallard ducks in Pennsylvania. This subtype has been detected several times in wild birds in North America and poses no risk to human health. The USDA National Veterinary Services Laboratories confirmed the presence of the "North American strain" of low pathogenic H5N1 avian influenza through virus isolation in one of the 15 samples collected from the wild mallards in Crawford County, Pennsylvania. Initial screening results announced on Sept. 2 indicated that an H5N1 avian influenza subtype was present in the collected samples, but further testing was necessary to confirm pathogenicity. As previously announced, genetic testing ruled out the possibility that the samples carried the specific highly pathogenic strain of H5N1 avian influenza that is circulating overseas. Low pathogenic strains of avian influenza commonly occur in wild birds and typically cause only minor sickness or no noticeable signs of disease in birds. Low pathogenic H5N1 is very different from the more severe highly pathogenic H5N1 circulating in parts of Asia, Europe and Africa. Highly pathogenic strains of avian influenza spread rapidly and are often fatal to chickens and turkeys.

Michigan Wild Bird Surveillance: According to the National HPAI Early Detection Data System website, which is run by the US Geological Survey and available at http://wildlifedisease.nbii.gov/ai/, Michigan has results for a total of 216 wild birds submitted for testing as of September 22. 104 of these birds were live-captured and tested, 97 were hunter-killed, 11 were sentinel animals, and 4 were dead birds that were submitted for testing. HPAI subtype H5N1 has not been recovered from any Michigan samples tested to date, or from the 19,840 birds tested nationwide.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at http://www.michigan.gov/emergingdiseases.

Please contact Susan Vagasky at VagaskyS@Michigan.gov with any questions regarding this newsletter or to be added to the weekly electronic mailing list.

Table 1. H5N1 Influenza in Poultry (Outbreaks up to September 20, 2006)
(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 9/26/2006)

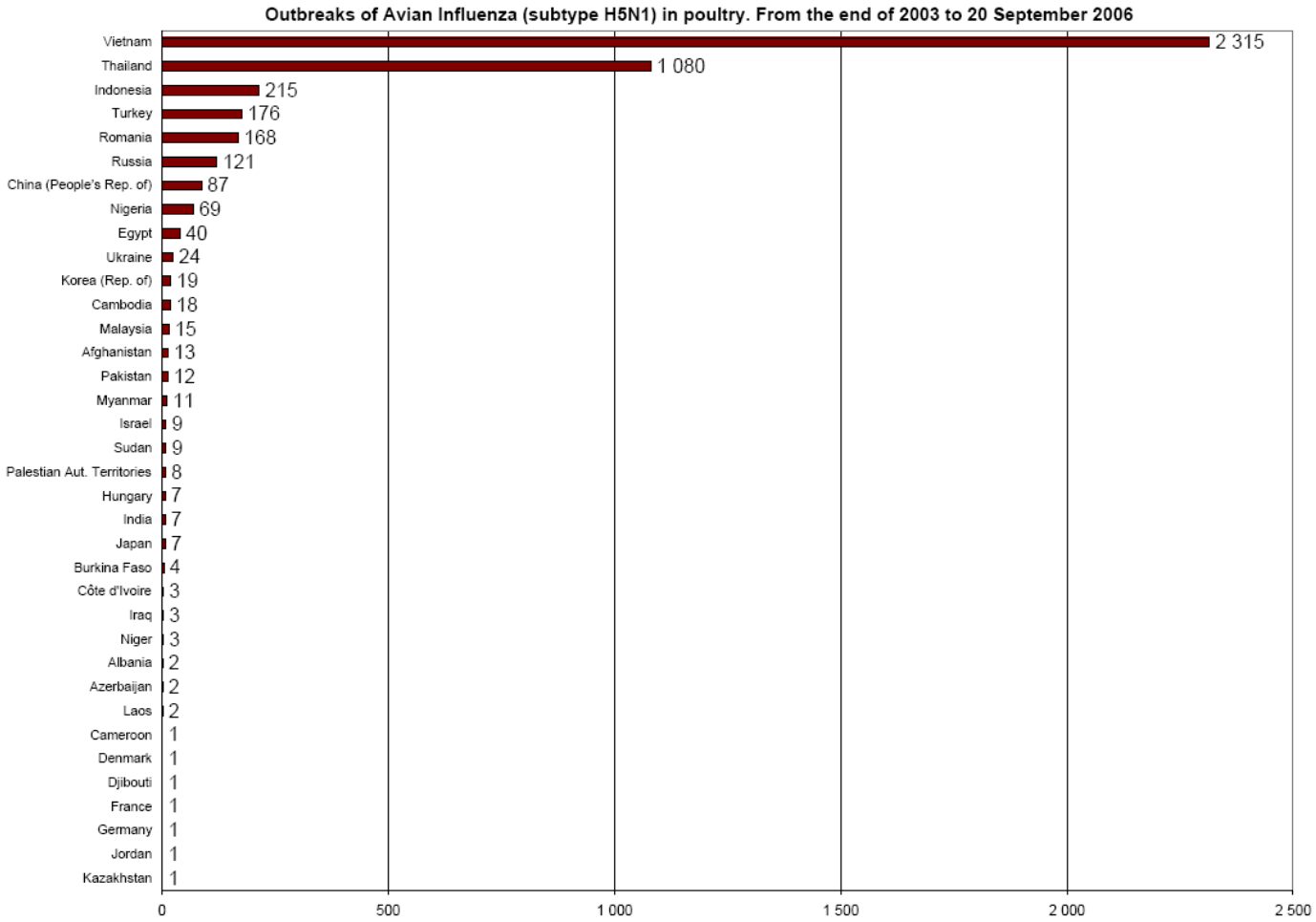


Table 2. H5N1 Influenza in Humans (Cases up to September 28, 2006)
(http://www.who.int/entity/csr/disease/avian_influenza/country/cases_table_2006_06_06/en/index.html Downloaded 9/28/2006)
Cumulative number of confirmed human cases of Avian Influenza A(H5N1) reported to WHO. The total number of cases includes number of deaths. WHO only reports laboratory-confirmed cases.

Country	2003		2004		2005		2006		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	8	5
Cambodia	0	0	0	0	4	4	2	2	6	6
China	1	1	0	0	8	5	12	8	21	14
Djibouti	0	0	0	0	0	0	1	0	1	0
Egypt	0	0	0	0	0	0	14	6	14	6
Indonesia	0	0	0	0	19	12	49	40	68	52
Iraq	0	0	0	0	0	0	3	2	3	2
Thailand	0	0	17	12	5	2	3	3	25	17
Turkey	0	0	0	0	0	0	12	4	12	4
Viet Nam	3	3	29	20	61	19	0	0	93	42
Total	4	4	46	32	97	42	104	70	251	148